# A new Antrophyum from Luzon

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(PLATE 4)

The ferns of the Philippine Islands have especial interest for American fern students, both because of the present government of the islands and because the principal authority on Philippine ferns is an American botanist, Dr. E. B. Copeland, to whose work further reference is made in another page of this number of the JOURNAL.

In connection with a study of the fern tribe Vittarieæ, of which only a single species, *V. lineata* (L.) J. E. Smith, occurs in the United States, the writer has had occasion to examine the Philippine species of this tribe, and this study has brought to light the new species of *Antrophyum* here described. *Antrophyum* Kaulfuss is one of the three Vittarioid genera found in the Philippines, and in the Old World generally. It comprises twenty to twenty-five species (as I have found in the course of nearly five years' intermittent study). Of the other two Old World genera, *Monogramma* Schkuhr, with five species, is particularly interesting because it includes the two simplest species of ferns known, with leaves only an inch or two in length and with a single vein through the middle. *Vittaria*, the other genus, numbers nearly forty species, of which about sixteen are American. The Vittarieæ in America are otherwise represented by four more genera, *Anetium* Splitg., *Ananthacorus* Und. and Max., *Hecistopteris* J. Smith, each with a single species, and a group of ten species which have heretofore been called *Antrophyum*, but which appear to form a distinct genus.

The material of the species here to be described was collected by Mr. R. S. Williams in 1904, and is, like all his collections, splendidly prepared and almost as good as if fresh. I have seen no other material of this species, although I have had for examination the Vittarieæ from

the herbaria of the Bureau of Science at Manila, Yale University, the National Museum, the Underwood Fern Herbarium at the New York Botanical Garden, and part of Dr. Copeland's herbarium.

**Antrophyum Williamsi** sp. nov.

Plants small, epiphytic; stem creeping, dorsiventral, the phyllotaxy distichous; leaves 3–6, cespitose, rigid, 6-12 cm. long, nearly erect, often falcate; the petioles stout, 1.5-2 mm. thick, margined, usually nearly or more than half the length of the leaf; the blade linear-elliptic, 4-8 mm. broad, thick, usually somewhat revolute, the margins sharp, the upper surface smooth when fresh, wrinkled when dry but not showing the course of the veins, the leaf trace of two bundles, the veins forming 3-6 areolæ across the broadest part of the blade; sporangia in disjunct or occasionally branching lines, spreading at maturity so as almost completely to cover the back of the blade, in shallow open grooves; paraphyses clavate, usually bent at a right angle near the base, smooth, brown; spores triplanate.

Type collection from tree trunks, Baguio, Province of Benguet, Northern Luzon, Philippine Islands. *R. S. Williams 1579*, Nov. 3, 1904. Deposited in the Underwood Fern Herbarium, New York Botanical Garden.

*Antrophyum* is an interesting genus, totally unlike anything found here in the United States. The genus is characterized, first, by having the sporangia in lines of indefinite extent, usually in grooves, and always associated with sterile stalked paraphyses; second, by a system of simple netted veins all of which are practically equal in size, so that there is no midrib. All the species have simple entire leaves.

*A. Williamsi* is almost the smallest of the genus, in which are species with leaves two or three feet long and nearly a foot wide. *A. nanum* Fée, also found in the Philippines, is probably the smallest species and is like *A. Williamsi* in some respects, but differs in having

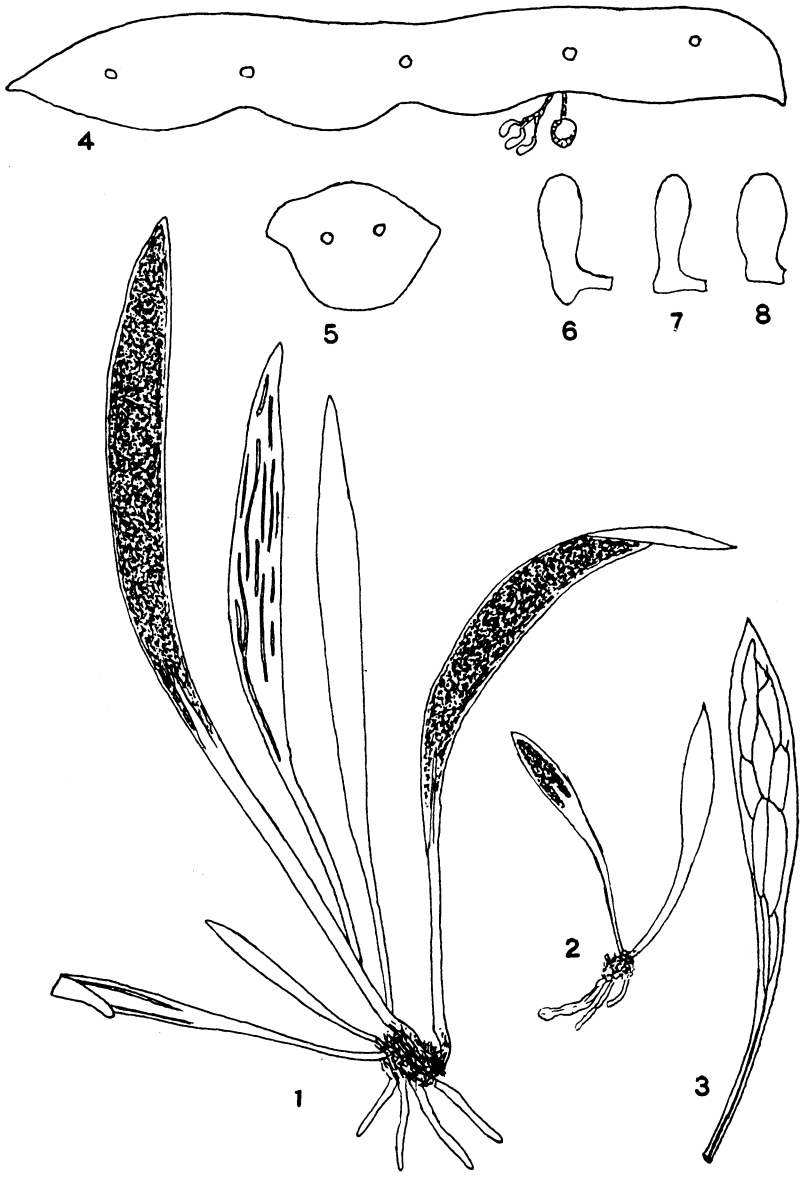


PLATE 4.. ANTROPHYUM WILLIAMSI Benedict

spatulate leaves, with thinner, usually broader blades, on the upper sides of which the veins show; the petioles are much more slender, and the paraphyses are of a different shape.

*A. Williamsi* resembles *A. parvulum* Blume even more than *A. nanum*, but this species also has thinner leaves, of somewhat different shape; the veins are not evident on the leaf surface, and the petioles are proportionately much shorter; the paraphyses also are different. *A. parvulum* as a rule reaches a larger size than *A. Williamsi*.

Luzon and the other large Philippine Islands are, like Cuba, very incompletely known botanically. The northern, western, and southern portions have been the most explored and are fairly well known, but much of the interior and eastern part has always been difficult of access, both because of its very rugged mountainous topography, and because of the hostile character of the natives. Eventually it should yield a large number of interesting new plants.

EXPLANATION OF PLATE 4

1. Largest plant seen; natural size.
2. One of the smallest plants seen, natural size.
3. A single leaf from the plant shown in fig. 2, × 2.
4. Cross section of a medium-sized leaf blade, showing diagrammatically the attachment of the sporangia and the paraphyses, × 12.
5. Cross section of the petiole of the same leaf with its double leaf trace.

6–8. Typical forms of paraphyses, greatly magnified.

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